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ABSTRACT

This report explores the benefits of establishing a centralized automated university information directory of available resources and software. The report covers five areas: (1) it describes the need for a centralized information directory service; (2) it makes recommendations for collecting information on resources and software in use or shareable by university faculty, staff, and students; (3) it recommends policies and procedures for initiating and maintaining a directory of information resources; (4) it explores the possibility of making such a directory active so that it not only provides information indicating the existence and location of a resource, but may also serve to electronically connect the user to the resource; and (5) it identifies areas for further study, acknowledges technical problems that remain to be resolved, and pinpoints policy and support issues that require the attention of the university administration. Appendices include a suggested questionnaire for collecting directory information, a suggested cover letter, a VTLS (Virginia Tech Library System) MARC (Machine Readable Cataloging) record input screen display, and a VTLS user screen display. (KM)

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REPORT OF THE DATABASE OF DATABASES TASK FORCE: A UNIVERSITY RESOURCE DIRECTORY

October 21, 1987

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Abstract

This report explores the benefits of establishing a centralized automated University Information Resource Directory which would list the wide variety of resources available at Virginia Tech, especially software and electronic data. Recommendations are made for near term implementation of such a directory. Long term alternatives are also discussed with special attention given to the policy and procedural issues that remain to be resolved.

Preface

This document is a report from the Database of Databases Task Force convened at Dr. Heterick's request and which met for the first time in March 1987. The charge of the task force was to research the need and requirements for collecting information about shareable resources and to recommend a standard for systematically listing and describing, i.e., cataloging, various collections and software developed and/or used by faculty, staff, and students at Virginia Tech. Additionally, the task force was asked to explore the possibilities of using such a directory to facilitate making these cataloged resources electronically available to users. The task force is chaired by Phyllis Johnson, Library, and the membership includes: Lore Balkan-Vickers, Data Administration; John Cosgriff, Library; Gail McMillan, Library; and Bill Ranck, Computing Center.

As a result of Dr. Heterick's directive and the initial consensus of the task force membership, the following premises were established:

1. A directory of all available resources and software would be a valuable service to the university community, therefore the most immediate goal is to make the existence of resources and software known to those who access Virginia Tech computing systems.

2. Any individual connecting with any portion of the information resource should be able to query and interact with any other portion, assuming authorized clearance. The user should not need system or resource-specific knowledge in order to access the resource. An active directory system should serve to enable user-directed access.

This report has several purposes:

1. To describe the need for a centralized information directory service.

2. To make recommendations for collecting information on resources and software in use or shareable by Virginia Tech faculty, staff, and students.

3. To recommend policies and procedures for initiating and maintaining a directory of information resources.

4. To explore the possibility of making such a directory active so it not only provides information indicating the existence and location of a resource, but may also serve to electronically connect the user to the resource.

5. To identify areas for further study, acknowledge technical problems that remain to be resolved, and pinpoint policy and support issues that require the attention of the university administration.

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Introduction

"Technology provides the mechanisms to enhance intellectual interchange."

----C. Edward Wall, Former Director of the University
of Michican-Dearborn Library; Editor and Publisher
of *Library Hi Tech*

Many members of the university community create, maintain, purchase, or subscribe to information resources, collections, and software which they are willing to share and which would be useful to others. There is considerable investment of university funds and personnel procuring and developing computer databases, programs, and sophisticated systems which serve to continually and more efficiently process and disseminate information. The Research Division identified the need for a software registry, not only as a means of conserving expensive resources and avoiding duplication of effort, but also as a means for monitoring and regulating the use and distribution of internally developed software within the legal and proprietary interests of the university.

There are many examples of systems or electronically stored information that serve a broad base of the university community. One example is the Virginia Tech INFO system which includes an assortment of policy and procedural documents, a faculty expertise system, central stores catalog, campus construction and traffic information, and more. Other university publications are becoming available electronically, in addition to printed or book bound form. Certain public information derived or extracted from the university's administrative data resource, *e.g.*, the Student Census File, will be increasingly available. Other private databases have been created by university faculty and staff and exist on such database systems as SPIRES and FOCUS. In addition, there are public databases owned or subscribed to by colleges, departments, or the University Libraries. These may be external to Virginia Tech but readily accessible via assorted networks. Examples are: Dialog, STN International, Dow-Jones, NASA/Recon, Medline, Knowledge Index, Wilsonline, and assorted electronic bulletin boards.

Traditional resources are becoming increasingly available through assorted electronic media, *e.g.*, portable data on diskette, CD-ROM, laser disks, networks, bulletin boards, etc. In addition, there are resources such as private slides and rock collections stored in other central campus resource centers and not yet described in the library's catalog. The existence of all these resources should be equally discoverable by a researcher's query. Searches, both general and specific, should be comprehensive and include all media. For example, a topical search should identify relevant electronic data stores, slides, and privately held collections, as well as books, articles and other references usually found within a library. In effect, the university becomes a library. This is a vision increasingly shared by institutions of higher education. Brown University is but one example where a university has embarked on a major project to expand and integrate its computing, communication, and information systems. In the report, "The Electronic Campus: The Impact of the Scholar's Workstation Project on the Libraries at Brown" the authors acknowledge: "The new information technologies are requiring the university and the library to rethink how scholarly information should be provided and accessed on campus." (Moran, Suprenant and Taylor 1987,15)

In the not-so-distant future, we anticipate that the result of a research query will not only identify the existence and location of a resource, but also support retrieval of items identified in the search. The catalog will perhaps become a director, not only reporting the result of a search, but ultimately pointing to the resource via the required gateways and control mechanisms. Searches and retrieval will be transparent to the user even though resources may exist in several databases and on different

systems. The Single System Image infra-structure described by Dr. Robert Heterick (Heterick 1986) will be in place in the near future. The information industry is moving quickly to develop technology, methodology, and tools to support user-directed access to resources. It is essential that we begin now to document resources so we are indeed able to respond to simply stated user requests for both directory information and access. Centralization and standardization of this effort is essential to truly managing the information resource. If this service is not clearly provided by a central source within the university, perceived need by numerous factions of the university will foster creation of a variety of non-integrated directories. University resources will be applied to develop and maintain dispersed directories that may well provide an enhanced knowledge base and information management assistance, but which will fail to support interconnectivity and the ability to take advantage of advanced information delivery technology.

A Directory to Support Our Goals

"To deal with the increased volume, speed and availability of information, we must develop the technology for assisting our selectivity and judgement."

----Philip Bossert, Manager of Strategic Information Systems,
Hawaiian Telephone Company, Honolulu

The long range goal of a Single System Image for user-directed access is one that a number of task forces are currently addressing. The technical issues surrounding cross-system communication and integration are not simple. We believe, however, that there will be functioning prototypes within the next 18 months that will respond to simply stated user requests with information from separate and diverse systems and that the user will not be required to know the intricacies of the systems participating in the response. A certain amount of central coordination and resource management will be required to make this a reality. An online central information resource directory will be a key tool for facilitating interconnectivity and communication. Later in this report we discuss more specifically how a directory might evolve from a passive repository of information to an active pathfinder for access.

The short term goal is to capture minimal descriptive information about the existence and location of these resources. This will enable near term search capabilities and position the university to capture more detailed information and support active directory functions.

The immediate goal on which this task force has focused its attention is to lay the groundwork for collecting, maintaining, and reporting basic information from which to create a directory. This effort has several parts:

1. Investigating cataloging standards already used in the computing and library sciences and identifying key data elements that need to be captured in order to fulfill a directory function.
2. Designing and testing a data collection tool that will efficiently service both the suppliers and the maintainers of directory information.
3. Proposing both the necessary procedural and automated systems required to solicit and maintain directory information and as a result, successfully perform a passive directory function. Successful performance is dependent on both efficient retrieval and meaningful presentation of directory information.
4. Discussing the staffing and funding needs, as well as exploring logical organization locations and cooperative agreements required to support the passive directory function.

What is Cataloged?

"The distinction between machine readable descriptive catalog records and the items they describe is likely to continue to blur in an online environment. The catalog becomes the entry point to an online continuum that includes bibliographic resources, tables of contents, abstracts, indexes, and the text of journals, reference materials, and even monographs."

----Michael Buckland, School of Library and Information Studies,
University of California, Berkely

Given the premise that the ultimate goal for a directory function is to include all resources, regardless of the storage medium, the task force expanded the initial concept of a database of databases. Whatever the mechanics of systematic data collection or storage chosen, it should not be restrictive to the point of excluding any particular type of resource from the directory. The immediate and highest priority is to capture directory information about electronically stored data and computer systems and programs. However, we want to be in a position to include in the directory information about non-machine readable data or collections, including photographs, slides, graphics, etc.

A number of philosophical issues have surfaced regarding what will be in the directory. Ownership seems at first to be a significant issue: Is it necessary to identify an owner prior to cataloging? If so, what are the determining factors of ownership? What, if any, responsibilities should an owner assume? Jay-Louise Weldon in "Who Owns the Data" points out that "if an owner cannot be found, data, like an abandoned car, suffers from lack of attention and control, and its usefulness deteriorates." The article goes on to describe the role of data ownership as one of stewardship. "The owner is the ultimate authority on the meaning of the collection. Because this owner knows when and under what circumstances the data is collected and modified, he or she is in the best position to explain the data significance." (Weldon 1986,54)

We concur with Weldon's observations and conclude that since the supplier of the information for the directory is the *de facto* expert and therefore the person held accountable for the information supplied, we should accept the supplier as the owner unless notified otherwise. The supplier is the steward of the information and thus has the responsibilities of suppling accurate information and of updating that information. However, the supplier/owner should not be required to assume any responsibilities beyond reviewing and updating the directory entry; the entry should indicate if documentation exists, if consulting services are available, and so forth, i.e., ***the extent of stewardship to which the owner agrees.*** A supplier's responsibilities are limited to providing accurate directory information. In addition, the supplier may agree to provide consulting service, user documentation, etc.

The system used to facilitate the cataloging and directory function needs a steward as well. Someone must have the responsibility of managing the directory system and prompting suppliers to periodically review and update catalog entries. Widespread awareness and support of a directory function is essential for it to continue to provide a useful service. A department, group, or at minimum an individual should be an identifiable advocate and champion of the directory service. More specific requirements for directory system management are discussed later in this report.

Another area addressed was that of permission to catalog: What, if any, permissions should be required? What, if any, review should exist of items being cataloged in terms of quality, accuracy,

currency, etc.? What type of on-going review and maintenance of directory entries should be required?

Our foremost conclusion is that ***all resources should be cataloged.*** Michael Buckland in his article "The Vanishing Library Catalog: Access, Bibliography, and Technology" calls for reorganization of current catalogs. He states: "Each entry would have associated local holdings information, but 'local holdings' should mean 'accessible and deliverable'." (Buckland 1987,42) We concur that cataloging of a collection should imply availability, but not necessarily unrestricted access. The degree to which a resource might be available or the rules inherent in using a particular resource should be briefly stated in the catalog entry. We assume that an owner of a collection will not respond to a "request to catalog" if he or she does not want the existence of the resource known.

With regard to the quality of a cataloged item, we concluded that to evaluate and judge each resource would undermine the collection effort. Therefore, our position on this issue is that only minimal review should take place, primarily in the form of acknowledging to the supplier the entry of the item. However, the suppliers should be periodically asked to review the catalog entry and supply updates as appropriate. Users who find that a resource item is of poor quality or that directory information is inaccurate will likely make that known to the supplier or the directory system maintainer/s. Resolutions of such issues should be dealt with case by case.

We decided that the primary collection tool should be a questionnaire. Since a task force within the Research Division was planning a similar resource identification effort, we contacted them to determine if the two groups could collaborate. The Research Division recently sent a memo to the faculty, proposing a software registry and inviting general feedback on the idea. At this point it appears that the questionnaire and system we are proposing will also satisfy the Research Division's need for a software registry. We anticipate eventually sending the questionnaire to all faculty and staff. However, as a final test of the questionnaire, we recommend sending it first to those who responded to the Research Division's survey. These respondents are individuals who have already indicated a willingness to participate in such a project and are likely contributors to a University Information Resource Directory.

The task force also recommends that an online version of the finalized questionnaire be made available to allow suppliers to electronically send directory information. Articles to announce the collection effort and directory service should appear in university publications such as Spectrum, Computing Center LOG and Fastline.

The Directory System, Where and How?

"Libraries must increase access to electronic information....when libraries are positioned as gateways or as supermarkets for distribution of electronic information, they will have the means of adapting to a society in which access to electronic information is imperative. Producers of electronic information should be supportive as libraries change from an orientation as information collectors and owners to one as information distributors and brokers."

----Joe Santosuosso, CL Systems, Inc.,
West Newton, Massachusets.

Ask most librarians to describe the function of a library and you will be told it is to collect, describe, and disseminate information. Collection has traditionally implied that a library resource could be made available and physically resided in the library or in a remote library with a sharing and loan agreement. Technology is changing that assumption. Michael Buckland, cited earlier in this paper, makes a relevant point. "If library materials and location information reside in electronic form, multiple users could simultaneously access a machine readable file from separate remote locations. The actual physical location of the object is no longer a concern to the user. Access to information is paramount." (Buckland 1987,41) ***We contend that a University Information Resource Directory is a pivotal tool for collecting, describing, and disseminating information and that the directory service is logically a library service.*** Traditional catalog entries will likely become more expansive as the descriptive information about a resource can also enable electronic delivery of the resource. It is perhaps only at that point that libraries truly fulfill their mission and effectively disseminate information. Dissemination will be managed and controlled by a knowledge-based system, which may well be the Information Resource Directory.

The task force investigated system support alternatives for a University Information Resource Directory. We looked at online cataloging systems with a view toward the future, paying particular attention to what should be included to provide a directory service.

Facilitating Access

The primary goal is the provision of information about data, software, and collections as well as traditional library resources via a single search. Therefore, we investigated the feasibility of using VTLS (Virginia Tech Library System) to record and report directory information. VTLS is accessible by the university community, both from within the library and from remote locations. It supports standard catalog entry and online basic directory information.

After further discussion of VTLS, we learned that the Online Computer Library Catalog (OCLC), a bibliographic utility shared and accessed by over 4,000 libraries including Virginia Tech, already includes catalog entries for commercial software. Virginia Tech library staff query OCLC for a pre-existing entry prior to cataloging a new item. If one exists, it is embellished with local information and downloaded to VTLS. If one does not exist, a standard entry is created locally and may be added to OCLC as well. We studied existing catalog standards for machine readable files and used them as guidelines for creating entries in the proposed directory.

Both OCLC and VTLS use the internationally recognized MARC (MAchine Readable Cataloging) record formats. The MARC system uses ANSI Standard Number Z39.2-1979. We believe that by using this internationally recognized standard, the university would be in a relatively good po-

sition to transfer information to a wide variety of computer systems as new directory strategies are discovered.

The Data Collection Tool

To help determine what information to collect about any particular resource, the task force looked at MARC formatted entries for machine-readable files. We also identified some additional information that we wanted to capture in our directory. We were able to map all of this descriptive information to the MARC standard. We developed questions to gather the required information.

The questionnaire underwent several tests. First several task force members completed a questionnaire for a resource that was familiar to them. Second, the task force asked several individuals who were known to be stewards of a data resource to complete the questionnaire and provide feedback on its useability. We discussed our project and questionnaire with the Learning Resources Center. The questionnaire underwent changes with each iteration and is still considered a draft document. It is included as Appendix A. Appendix C contains sample MARC catalog entries in VTLS prepared from completed questionnaires. The resulting VTLS patron screens displayed as a result of a search are included in Appendix D. Certain of the fields that we found prudent to use do not currently display on the Virginia Tech version of the VTLS screens. However, the VTLS software supports local user definition of certain displays and this problem can be easily corrected.

A great deal of analysis went into determining MARC field usage. We attempted to take advantage of both current and planned VTLS indexing so that the most pertinent portions of an entry could be easily retrieved and displayed. The proposed directory entry standard conforms to the MARC standard, while including pertinent information that might be considered unique to non-standard library materials.

The task force recommends testing the questionnaire once again on the 127 respondents to the Research Division's software registry interest survey. We expect to get valuable insight about both the collection tool and procedure as a result of this test. After this preliminary survey, we will re-evaluate the questionnaire and perhaps again make changes.

We readily admit we cannot anticipate VTLS functioning as the active directory we envision. We believe, however, that we are gathering the most pertinent information now, so the university will be in a position later to expand on the functionality of the passive directory. Having identified key resources and captured the most significant information about these resources, we can better anticipate the requirements for a fully functional active directory. The future for a directory function to support the Single System Image concept are discussed more specifically in the last section of this report.

System Maintenance and Support

The task force believes strongly that for a University Information Resource Directory to become reality, as either a passive or an active function, certain responsibilities must be assigned and supported. These responsibilities go beyond the initial data collection and data entry, and include on-going system management, monitoring, maintenance, and enhancement. We anticipate that these responsibilities will require the equivalent of one full time person. As we stated earlier in this paper, an identifiable advocate group or person to champion the project is a requirement for its success. We recommend that resources be dedicated from the main library and probably within the Cataloging Department, Technical Services Division. Placement of the University Information Resource Directory in the main library and within the realm of the Cataloging Department supports what we believe is a logical extension of traditional library services, particularly in light of advanced technologies that promote information sharing.

The position that we are suggesting will require considerable coordination with the library cataloging personnel, VTLS, the Computing Center, Data Administration, and the participating faculty and staff throughout the university. We outline below some of the duties of a directory coordinator/manager and some of the steps necessary for collecting the information and maintaining it in VTLS.

1. Manage data collection.
    - Publish announcements regarding the directory service and data collection procedures.
    - Coordinate with the Computing Center, Communication Network Services and Data Administration to develop a procedure for online source point entry and subsequent transmission of directory information.
    - Coordinate the dissemination and receipt of the hard-copy and electronically transmitted questionnaires.
    - Determine staffing needs for initial data entry and system start-up and train staff that may be hired.
2. Manage data entry.
    - Assign and code MARC fields, tags, indicators, etc. for information provided, conforming to established standards and local cataloging policies.
    - Establish a VTLS-compatible identification number.
    - Supervise data entry staff and review entries for accuracy.
3. Verify directory information.
    - Acknowledge receipt of information to suppliers. Provide suppliers with a copy of output screens as they appear on VTLS for their review.
    - Communicate with suppliers of directory information for clarification.
    - Establish a procedure and schedule for suppliers to periodically review directory entries for currency.
    - Resolve problems regarding accuracy and integrity of entries.
4. Provide on-going system support and maintenance.
    - Plan and request resources (*e.g.*, equipment, personnel, funding, etc.) required to initiate and maintain directory service.
    - Cooperate with Virginia Tech library staff as joint VTLS system users to assure that Virginia Tech's implementation of VTLS is enhanced by the the addition of directory type functions.
    - Communicate and coordinate with VTLS, Inc. to convey requirements and/or recommendations for such things as field indexing to support key-word searching, reporting options, etc.
    - Resolve problems reported from the VTLS system after daily buffer scan of directory data entered.
    - Continue the data collection effort by periodically advertising the service and redistributing the questionnaire.
    - Make recommendations for directory standards, expanded service, and system enhancements.
    - Serve on task forces to pursue the goal of an active directory function.

Long Term Recommendations

The short term recommendations of this task force are only the first step in what should be a long term effort to unify the diverse collections of information that are available on this campus. During the course of our discussions the longer term aspects of a University Information Resource Directory were considered and some of the more desirable future directions for this effort were determined.

From our present perspective, it is not exceedingly clear what the best future course may be. However, these are the task force recommendations for the longer term:

Increases in the interconnections of the various computer systems on campus will demand the development of software to support communications between databases and query languages on different systems. For example, a person using the VM computer system should be able to search the library catalog by using software on the VM computer system. The software will need to access and search the directory database and this process should be invisible to the user. Likewise, a directory user should be able to retrieve information from databases on VM just as easily and transparently. It should make no difference to the user that the data being searched for is not resident on the computer being used. This philosophy can be extended to micro-computers as well.

1. The required system development of this service will demand commitment of funding and personnel from the university administration down through all support groups.

2. Some standard of program-to-program communications needs to be set and followed. Programmers for VM, VAX, VTLS, and other computers must cooperate for an effort of this sort to be successful. In the end, the results will be well worth the effort.

3. Software development is only part of the requirement. New intelligent hardware will also be needed to interconnect the various computer systems.

4. Ongoing maintenance of directory integrity.

    - As discussed previously, a permanent position needs to be established to keep directory entries up-to-date and accurate. This should include periodic verification that each entry is still valid, since it is the nature of systems and data to change and/or become obsolete.

    - In addition to maintenance of the directory, the coordinator should also plan and lobby for development of more advanced features necessary for an active directory. Participation on the team of programmers and technicians working on the interconnectivity issues should be a major responsibility.

5. Development of unified user interface to databases.

    - A user of any Virginia Tech computer system should be able to search databases on all other computer systems without knowing where or how the data is stored. This will require a long term programming effort. Communications between VTLS, CMS, VAX, etc., will need to be established and/or improved to allow data searches from any of these systems to retrieve data from any other.

6. Links to and retrieval from external data sources.

- Expansion of the cross-system retrieval of data to include remotely searchable databases, *e.g.*, SPIRES updates at SLACVM. This would be a logical extension of the previous point and would very likely be only a slight difference.
- The basic concepts have already been identified and to some extent are functional at Virginia Tech.
- Remote searching, over BITNET, of databases on Virginia Tech mainframes has already been tested. Therefore, searches from outside the university via networks are also possible.
- Some effort will be required to standardize searching and make retrieval easy for casual users. The end result would make Virginia Tech a leader in information resource retrieval and sharing.
- The form of some collections will need to be enhanced to make them electronically accessible. For example, a butterfly collection would need to be photographed and then the pictures digitized to be stored in a form retrievable on a network.

Conclusion

- A central University Information Resource Directory is essential in pursuing a single system image.
- As the heart of information collection, description, and dissemination, the university library should be responsible for the University Information Resource Directory.
- The library should assign resources and begin immediately to collect directory information for ***all shareable information resources***
- Initial storage of directory data should be in MARC format in VTLS because it is readily available and has fields appropriate to store of the information.
- Longer term goals may require migration to another system.
- This project should be considered ***part of the university's larger goal of providing interconnectivity for all information delivery*** and as such, should be coordinated with all other computing and communication plans.
- Administrative commitment is of the utmost importance. New funding and personnel will be needed to make timely progress in an ongoing effort.
- A directory coordinator is essential to ensure that data is maintained and to act as a 'champion' for the system. Without a supported and committed individual, the effort will languish.

Appendix A. Suggested Questionnaire

Information for Software, Database, or Services Directory

1. Who is the author (can be a person, corporation, or conference)?

2. What is the title? (Please write it exactly as it appears on the terminal screen or on the box or cover that came with the piece.)

3. Who is the publisher or producer of the work?

4. In what country, city, or town is the publisher or producer located?

5. In what year was the work published or produced?

6. What edition, release, or version do you have?

7. What is the chronologic coverage of the data and dates data was collected?

8. How often is the file updated?

9. What is the physical form of the work you have--tape, disc, etc.? (Example: 9 computer files on 1 5 1/4" disc.)

10. Where is it located?

11. What is the data file format? (Example: SPIRES, SAS, or DB system files; flat file; hierarchical file, etc.)

12. What are the contents or parts of the work?

13. Are there any restrictions on access or use? If so, what are they?

14. What is the intended audience/users?

15. If there is documentation for this work where is it and who maintains it?

16. Please list any separate but related data files or publications you think should also have a catalog entry. (Example: When cataloging the telephone book there would be an entry for the Residential listings (white pages) and a separate entry for the Commercial listings (yellow pages) with an explanation on each record that the other existed.) Please fill out a separate form for each related data file as well as listing them here.

17. What key descriptors would you use to describe this work? (Example: restaurants, student enrollment data, etc.)

18. What equipment or software is necessary to use this database? Example: Apple IIe or II+ (64k), (DOS 3).

_____

19. What type of file or data does the work consist of?

___ Catalog	___ Text
___ Statistics	___ Directory
___ Game	___ Other, please describe
___ Program	

20. What special knowledge or system access is required to locate and use this database or service?

_____

21. Please write a brief abstract of the work.

_____

_____

_____

_____

_____

Please complete the following so that we can get in touch with you if we have questions or need more information >

Name _____

Dept. _____

Phone _____

Hours _____

rev. 4/27/87

Appendix B. Suggested Cover Letter

On the following two pages you will find a series of questions. We are asking that anyone who has, or maintains, a collection of data answer as many of these questions as possible. The results of this questionnaire will be used to catalog the information under VTLS. Some of the questions may not apply to your collection. Answers to a few of these questions would be much more useful than none at all, so just skip those that don't seem to apply.

We are especially interested in computer databases and/or programs, although data collections of any form will be useful. Your cooperation can help make this effort a success. In the near future it should be possible to find the data you need via the library's on-line catalog even if it isn't a book.

Appendix C. VTLS MARC Record Input Screen Display

```
VA TECH LIBRARIES- - - - - - V T L S - - - - - - MARC BIBLIOGRAPHIC SCREEN
 Local lvl: 0       Analyzed: 0 Operator: 00         Edit:
 CNTL: 009999991    Rec stat: n Entrd: 870321        Used: 870924
 Type: m Bib lvl: m Govt pub:   Lang: eng  Source: d Frequn: n
 File: m Enc lvl: I Machine : a Ctry: vau  Dat tp: s Regulr:
 Desc: a Mod rec:   Dates: 1984,
 1. 035    0707-64460
 2. 040    VPI \c VPI
 3. 049    VPII
 4. 099    Test \a 101 \a GailMc
 5. 100 1  Sanders, Mark E., \d 1953-
 6. 245 10 Orientation to offset lithographic press.
 7. 260    Blacksburg, Va. : \b Virginia Tech, \c 1984.
 8. 300       data files on 1 computer disk : \b sd., col. ; \c 5 1/4
           in. + \e 1 workbook.
 9. 505 0  Interactive video lesson ; 30 linear min.
10. 506    Principally for classroom use.
                                                  Enter 'NS' for more
NO ITEM OR HOLDINGS INFORMATION HAS BEEN ENTERED
IF ITEM CANNOT BE LOCATED ON SHELF, PLEASE CONSULT LIBRARIAN
ns
 1. 521    Introductory graphic arts students.
 2. 538    System requirements: Apple IIe or II+ (64k), (DOS 3.3), Sony
           SLO-323 Beta I, BCD 450 interface card, color monitor with
           audio.
 3. 556    Developed by Mark Sanders, Assoc. Prof. of Voc. & Tech. Ed.
 4. 650 20 Graphic arts \x Education.
 5. 650 10 Offset printing \x Education.
 6. 650 10 Lithography \x Printing \x Education.
 7. 740 01 Interactive video orientation to offset lithographic press

NO ITEM OR HOLDINGS INFORMATION HAS BEEN ENTERED
IF ITEM CANNOT BE LOCATED ON SHELF, PLEASE CONSULT LIBRARIAN
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VA TECH LIBRARIES- - - - - - V T L S - - - - - - MARC BIBLIOGRAPHIC SCREEN
 Local lvl: 0       Analyzed: 0 Operator: 00          Edit:
 CNTL: 099999134    Rec stat: n Entrd: 870430         Used: 870924
 Type: m Bib lvl: m Govt pub: s Lang: eng  Source:    Frequn: n
 File: b Enc lvl: I Machine : a Ctry: vau  Dat tp: s Regulr:
 Desc: a Mod rec:   Dates: 1986,
 1. 035    0711-62960
 2. 040     \c VPI
 3. 049    VPII
 4. 099    Test \a 134 \a GAILMc
 5. 100 1  Hoernemann, John
 6. 245 10 Faculty expertise.
 7. 260    Blacksburg, Va. : \b VPI&SU Research Division, \c 1986.
 8. 300    Approx. 40 files on VM1.
 9. 315    Daily.
10. 351    SPIRES files.
                                                    Enter 'NS' for more
NO ITEM OR HOLDINGS INFORMATION HAS BEEN ENTERED
IF ITEM CANNOT BE LOCATED ON SHELF, PLEASE CONSULT LIBRARIAN
ns
 1. 505 1  Input display - Searching - Output/report generation - Help
           - Survey.
 2. 506    Public access to most data, limited access to some data and
           most programs.
 3. 520    File contains information on individual faculty members:
           name, department, college, office phone, department phone,
           userid, NODE, areas of expertise, reseach profile,
           University rank, education, work experience, honors,
           language skills, research summary, comments and answers to
           various questions.
 4. 521    Audience: Public, Media-TV, Radio, Va.Tech Deans, Speakers
           Bureau.
 5. 523    Chronological coverage: 1986 to present.
 6. 538    System requirements: IBM Mainframe running SPIRES & VM.
 7. 556    Contact: John Hoernemann, 301 Burruss Hall.
 8. 653    Faculty Background
 9. 653    Faculty Expertise
                                                    Enter 'NS' for more
NO ITEM OR HOLDINGS INFORMATION HAS BEEN ENTERED
IF ITEM CANNOT BE LOCATED ON SHELF, PLEASE CONSULT LIBRARIAN
ns
 1. 653    Research Expertise
 2. 653    Research Profile

NO ITEM OR HOLDINGS INFORMATION HAS BEEN ENTERED
IF ITEM CANNOT BE LOCATED ON SHELF, PLEASE CONSULT LIBRARIAN
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VA TECH LIBRARIES- - - - - - V T L S - - - - - - MARC BIBLIOGRAPHIC SCREEN
 Local lvl: 0       Analyzed: 0 Operator: 00         Edit:
 CNTL: 099999135    Rec stat: n Entrd: 870508        Used: 870924
 Type: m Bib lvl: m Govt pub: s Lang: eng  Source:   Frequn: n
 File: b Enc lvl: I Machine : a Ctry: vau  Dat tp: s Regulr:
 Desc: a Mod rec:   Dates: 1969,
 1. 035    0712-69060
 2. 040     \c VPI
 3. 049    VPII
 4. 099    Test \a 135 \a GAILMc
 5. 100 2  Institution of Electrical Engineers. \b Information
           Division.
 6. 245 1  INSPEC
 7. 260    Blacksburg, Va. : \b International Information Services for
           the Physics and Engineering Communities, \c 1969.
 8. 315    Monthly.
 9. 506    Accessible through DIALOG.
                                                    Enter 'NS' for more
NO ITEM OR HOLDINGS INFORMATION HAS BEEN ENTERED
IF ITEM CANNOT BE LOCATED ON SHELF, PLEASE CONSULT LIBRARIAN
ns
 1. 520    INSPEC covers materials available through three printed
           copies of Indexes in the Science and Engineering areas of
           University Libraries.  It is a major database in the field
           of physics, electro technology, computers and control and
           information technology. Its coverage includes journal
           papers, conference proceedings, technical reports, books,
           patents, and university theses.
 2. 521    Scientific researcher.
 3. 538    System requirements: IBM PC with Smartcom software, terminal
           and modem.
 4. 556    Contact: Robin Barnard, Reference Dept., University
           Libraries, ext. 6354.

NO ITEM OR HOLDINGS INFORMATION HAS BEEN ENTERED
IF ITEM CANNOT BE LOCATED ON SHELF, PLEASE CONSULT LIBRARIAN
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VA TECH LIBRARIES- - - - - - V T L S - - - - - - MARC BIBLIOGRAPHIC SCREEN
 Local lvl: 0       Analyzed: 0 Operator: 00          Edit:
 CNTL: 099999136    Rec stat: n Entrd: 870509         Used: 870922
 Type: m Bib lvl: m Govt pub: s Lang: eng  Source:    Frequn: n
 File: b Enc lvl: I Machine : a Ctry: vau  Dat tp: s Regulr:
 Desc: a Mod rec:   Dates: 1979,
 1. 035    0712-73760
 2. 040     \c VPI
 3. 049    VPII
 4. 099    Test \a 136 \a GAILMc
 5. 110 2  Virginia Polytechnic Institute and State University. \b
           Institutional Research and Planning Analysis.
 6. 211 10 STUCENFL.
 7. 245 10 Student Census File.
 8. 260    Blacksburg, Va. : \b Office of Institutional Research and
           Planning Analysis, \c 1979.
 9. 300    System disk & tapes.
                                                   Enter 'NS' for more
NO ITEM OR HOLDINGS INFORMATION HAS BEEN ENTERED
IF ITEM CANNOT BE LOCATED ON SHELF, PLEASE CONSULT LIBRARIAN
ns
 1. 315    On- and off-campus census date data are extracted each term.
 2. 351    Flat file.
 3. 505 1  Applicants' and former and current students' demographic and
           academic record data.
 4. 506    Access is restricted to college deans and university
           officials. Contact Dr. E. W. Carson, Associate Provost.
 5. 516    Demographic and academic student data.
 6. 520    The Student Census File is a processed enrollment reporting
           file extracted from the IMS database at census date each
           term and used to report enrollments to the state and federal
           governmental agencies.
 7. 521    Audience: College deans and university officials.
 8. 538    Use of a high level programming language on the mainframe.
 9. 556    Documentation maintained by the Office of Institutional
           Research.
10. 590    Information provided by/Contact: Mary Ann Moore, Dept.
           Office of    Institutional Research and Planning Analysis,
                                                   Enter 'NS' for more
NO ITEM OR HOLDINGS INFORMATION HAS BEEN ENTERED
IF ITEM CANNOT BE LOCATED ON SHELF, PLEASE CONSULT LIBRARIAN
ns
           703-961-6218, 8am -5pm.
 1. 650  0 School census \z Virginia \x Statistics.
 2. 650  0 Degrees, Academic \z Virginia \x Statistics.

NO ITEM OR HOLDINGS INFORMATION HAS BEEN ENTERED
IF ITEM CANNOT BE LOCATED ON SHELF, PLEASE CONSULT LIBRARIAN
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Appendix D. VTLS User Screen Displays

VA TECH LIBRARIES - - - V T L S - - - BIBLIOGRAPHIC SCREEN

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 Call number: Test 101 GAILMc

      Author: Sanders, Mark E., 1953-
       Title: Orientation to offset lithographic press.
 Other title: Interactive video orientation to offset
              lithographic press.
     Imprint: Blacksburg, Va. : Virginia Tech, 1984.
 Description:    data files on 1 computer disk : sd., col. ;
              5 1/4 in. + 1 workbook.
    Contents: Interactive video lesson ; 30 linear min.
Restrictions: Principally for classroom use.
    Audience: Intended for introductory graphic arts
              students.
     Details: System requirements: Apple IIe or II+ (64k),
              (DOS 3.3), Sony SLO-323 Beta I, BCD 450
              interface card, color monitor with audio.
                                          Enter 'NS' for more
NO ITEM OR HOLDINGS INFORMATION HAS BEEN ENTERED
IF ITEM CANNOT BE LOCATED ONSHELF, PLEASE CONSULT LIBRARIAN

ns
        Note: Developed by Mark Sanders, Assoc. Prof.,
              Technology Education
     Subject: Graphic arts -- Education.
     Subject: Lithography -- Printing -- Education.

NO ITEM OF HOLDINGS INFORMATION HAS BEEN ENTERED
IF ITEM CANNOT BE LOCATED ONSHELF, PLEASE CONSULT LIBRARIAN
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VA TECH LIBRARIES- - - -V T L S- - - -BIBLIOGRAPHIC SCREEN

```
 Call number: Test 136 GAILMc

      Author: Virginia Polytechnic Institute and State
              University.  Institutional Research and
              Planning Analysis.
       Title: Student Census File.
 Other Title: STUCENFL.
     Imprint: Blacksburg, Va. : Office of Institutional
              Research and Planning Analysis, 1979.
 Description: System disk & tapes.
   Frequency: On- and off-campus census data are extracted
              each term.
 Arrangement: Flat file.
    Contents: Applicants' and former and current students'
              demographic and academic record data.
Restrictions: Use limited to college deans and university
              officials.  Contact Dr. E. W. Carson, Associate
              Provost.
                                        Enter 'NS' for more

NO ITEM OR HOLDINGS INFORMATION HAS BEEN ENTERED
IF ITEM CANNOT BE LOCATED ON SHELF, PLEASE CONSULT LIBRARIAN
ns

    Data note: Demographic and academic student data.
      Summary: The Student Census File is a processed
               enrollment reporting file extracted from the
               IMS database at census date each term and used
               to report enrollments to the state and federal
               government agencies.
     Audience: College deans and university officials.
      Details: Use of a high level programming language on the
               mainframe.
         Note: Documentation maintained by the Office of
               Institutional Research.
         Note: Information provided by/Contact: Mary Ann
               Moore, Office of Institutional Research and
               Planning Analysis, 703-961-6218, 8am-5pm.
      Subject: School census -- Virginia -- Statistics.
      Subject: Degrees, Academic -- Virginia -- Statistics.

NO ITEM OR HOLDINGS INFORMATION HAS BEEN ENTERED
IF ITEM CANNOT BE LOCATED ON SHELF, PLEASE CONSULT LIBRARIAN
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VA TECH LIBRARIES- - - -V T L S- - - -BIBLIOGRAPHIC SCREEN

Call number: Test 135 GAILMc

Author: Institution of Electrical Engineers. Information Division.
Title: INSPEC
Imprint: Blacksburg, Va. : International Information Services for the Physics and Engineering Communities, 1969.
Frequency: Monthly.
Restrictions: Available online through DIALOG at Newman Library.
Summary: INSPEC covers materials available through three printed copies of Indexes in the Science and Engineering areas of University Libraries. It is a major database in the field of physics, electro technology, computers and control and information technology. Its coverage includes
Enger 'NS' for more

NO ITEM OR HOLDINGS INFORMATION HAS BEEN ENTERED
IF ITEM CANNOT BE LOCATED ON SHELF, PLEASE CONSULT LIBRARIAN

ns
journal papers, conference proceedings, technical reports, books, patents, and university theses.
Audience: Scientific researchers.
Details: System requirements: IBM pc with Smartcom software, terminal and modem.
Note: Contact: Robin Barnard, Reference Dept., University Libraries, ext. 6354.

NO ITEM OR HOLDINGS INFORAMTION HAS BEEN ENTERED
IF ITEM CANNOT BE LOCATED ON SHELF, PLEASE CONSULT LIBRARIAN

VA TECH LIBRARIES- - - -V T L S- - - -BIBLIOGRAPHIC SCREEN

Call number: Test 134 GAILMc

Author: Hoernemann, John.
Title: Faculty expertise.
Imprint: Blacksburg, Va. : VPI&SU Research Division, 1986.
Description: Approx. 40 files on VM1.
Arrangement: SPIRES files.
Contents: Input display - Searching - Output/report generation - Help - Survey.
Restrictions: Public access to most data, limited access to some data and most programs.
Summary: File contains information on individual faculty members: name, department, college, office phone, department phone, userid, NODE, areas of expertise, research profile, University rank, education, work experience, honors, language
Enter 'NS' for more

NO ITEM OR HOLDINGS INFORMATION HAS BEEN ENTERED
IF ITEM CANNOT BE LOCATED ON SHELF, PLEASE CONSULT LIBRARIAN

ns

skills, research summary, comments and answers to various questions.
Audience: Public; media--TV, radio; Va. Tech deans; Speakers Bureau.
Data/Date(s): 1986 to present.
Details: IBM mainframe running SPIRES & VM.
Note: Contact: John Hoernemann, 301 Burruss Hall.

NO ITEM OR HOLDINGS INFORAMTION HAS BEEN ENTERED
IF ITEM CANNOT BE LOCATED ON SHELF, PLEASE CONSULT LIBRARIAN

Appendix E. References

Bossert, Philip. 1987. The passing of remoteness. *Computerworld* 21(42):92.

Buckland, Michael. 1987. The vanishing library catalog: access, bibliography and technology. *Annual Review of OCLC Research* (July 1986-June 1987):40-42.

[Heterick, Robert C.] May 1986. Decision support: a single system image. Information Systems, Virginia Tech, Blacksburg. Photocopy.

Moran, Barbara B., Thomas T. Surprenant, and Merrily E. Taylor. 1987. The electronic campus: the impact of the scholar's workstation project on the libraries at Brown. *College & Research Libraries* 1:5-16.

Santosuosso, Joe. 1985. The library as a gateway to online services. *ASIS Proceedings 1985*:106-110.

Wall, C. Edward. 1986. The conference on information resources for the campus of the future: a report. *Library Hi Tech* 4 (Winter):37-48.

Weldon, Jay-Louise. 1986. Who owns the data? *Journal of Information Systems Management* 3 (Winter):54-57.